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ABSTRACT

This paper describes three alternative perspectives--information processing, social constructivism, and Piagetian/naturalist--of reading/writing connections and suggests instructional implications influenced by the three perspectives. The paper explores each theory in terms of basic assumptions, related research, and strengths and limitations and then relates this information to the role of the teacher, the role of the student, and the role of the classroom environment. The paper suggests that although each approach provides a different lens for examining the relationships between reading and writing, the theories work together to build a picture of the converging processes of reading and writing. (Eighty-four references are attached.) (KEH)

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Sarah J. McCarthey and
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Abstract

This paper describes three alternative perspectives--information processing, social constructivism, and Piagetian/naturalist--of reading/writing connections and suggests instructional implications influenced by the perspectives. Each theory is explored in terms of basic assumptions, related research, and strengths and limitations. Cognitive information-processing theories are based on the assumptions that (a) reading and writing consist of a number of subprocesses used to perform specialized tasks; (b) readers and writers have limited capacity for attention so that trade-offs occur across the subprocesses; and (c) readers' and writers' competence is determined by the degree of attention needed to operate the subprocesses. Research from the cognitive information processing perspective has focused on the analysis of the components of reading and writing and the relationships among components, differences between experts and novices, and the importance of underlying knowledge structures on readers and writers. Piagetian/naturalist perspective theories are based on the assumptions that (a) learning occurs through accommodation and assimilation of the environment; (b) the child actively constructs knowledge through interaction with the print environment; and (c) learning develops according to stages of development. Research from the naturalist perspective focuses on the ways that children acquire language through their experiences with oral language. Social constructivist theories are based on the assumptions that (a) knowledge is constructed by the interaction of the individual with the social/cultural environment; (b) higher mental functions including reading and writing are social cultural in nature; and (c) knowledgeable members of the culture can assist others in learning. Research from this perspective has focused on the role of cultural practices and contexts in literacy. Each theory has different implications for instruction and the role of the teacher, the role of the student, and the role of the classroom environment. Although each provides a different lens for examining the relationships between reading and writing, the theories work together to build a picture of the converging processes of reading and writing.

ALTERNATIVE PERSPECTIVES OF READING/WRITING CONNECTIONS[1]

Sarah J. McCarthey and Taffy E. Raphael[2]

Imagine a visit to three fourth-grade classrooms that had just finished reading Tales of a Fourth Grade Nothing by Judy Blume. In each classroom, the teacher considered a range of postreading activities. Coincidentally, each teacher decided to have students write summaries of the tale. As we eavesdrop on each of these lessons, we notice differences in the way each teacher approached the writing/reading opportunity.

In Mrs. Anderson's classroom, we observe her at an overhead projector. On the overhead is a blank story map with categories for setting, characters, initiating event, reactions, and so forth. Each student has, at his or her desk, a copy of the story map form displayed on the screen. The discussion focuses students' attention on each element of the story's structure, the recurring nature of these elements throughout the chapters, and the relative importance of different ideas that were presented. As the discussion closes, Mrs. Anderson directs the students to use their own maps as a way to organize their ideas, then to use their notes as they write a summary of what they think are the most important ideas from the story.

In Mrs. Baker's classroom, we observe students sitting in small groups, some on bean bag chairs in the literacy center, others around tables, or on the

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rug near the classroom library. As students converse about the tale they've just heard, thinking about how it relates to some of their own experiences this year, the teacher moves from group to group, listening, nodding, and asking questions. The teacher occasionally reminds students that when they are finished discussing the stories, they are to write a summary that will be shared with others as part of the classroom "Review of Books" in the literacy center.

In Mrs. Cosie's classroom, we observe the students sitting at tables forming small groups of three to four children. We see a lesson that appears to have two parts. Initially, Mrs. Cosie leads a discussion about a recent episode of "The Wonder Years" which many students, but not all, had seen. The episode showed the difficulty of walking into a new environment (i.e., the cafeteria) and how the main characters handled it. The students are asked to summarize the main events in the story, working together relating specific events, and, for those who had not seen it, asking questions. Mrs. Cosie prompts students to contribute, pointing out how much they remembered by all working together. She relates the idea of being in a new situation to all the characters in the book they had just read, and directs students to think about what they remember from the story. She then has students work within their groups, constructing a group summary of the story.

Each of these scenarios reflects a reasonable and appropriate way to integrate reading and writing. Yet, underlying these scenarios are different views of knowledge, the role of instruction, the role of the student, and the classroom environment. In essence, each of these scenarios captures and reflects a different and prominent theory of learning and development. Mrs. Anderson's lesson reflects many of the principles consistent with an information-processing perspective; Mrs. Baker's lesson is consistent with a

naturalist perspective; and Mrs. Cosie's lesson reflects principles fundamental to a social constructivist perspective.

In this paper, we discuss three prominent perspectives. In the first three sections, we describe each of the three theories in terms of their underlying assumptions, their contributions to research on reading and writing connections, and their strengths and limitations. In the fourth section, we focus on implications for instruction in terms of the role of instruction and the teacher, the role of the student, and the classroom environment.

Cognitive Information-Processing Theories

Information processing has been used to develop several individual models of both reading and writing processes (deBeaugrande, 1982; Gough, 1972; Hayes & Flower, 1980; Kintsch & van Dijk, 1978; LaBerge & Samuels, 1974; Stanovich, 1980). Based on a positivist philosophical tradition, the models assume the existence of an objective reality that can be measured and modeled. When applied to literacy, this perspective suggests the processes of reading and writing are stable across contexts (i.e., fit an objective and defined reality). It also suggests that we can describe these stable processes in terms of how their underlying knowledge structures are represented. Thus, model building has focused on the processes themselves, and on the structure of knowledge.

Basic Assumptions of Information Processing

In building their models, information-processing theorists appear to be guided by three basic assumptions: (a) reading and writing consist of a number of subprocesses used to perform specialized tasks; (b) readers and writers have limited capacity for attention so that trade-offs occur across the subprocesses, and (c) readers' and writers' competence is determined by the degree of

attention needed to operate subprocesses; thus, the less memory needed, the more efficient the operations.

Subprocesses in writing and reading. Like the computer that has various components performing specialized functions that interact to complete a task, information-processing models of reading and writing divide the processes into subprocesses, each having a different function. For example, Flower and Hayes (1981) describe writing as consisting of three recursive phases: (a) planning in which writers set goals and make plans, (b) translating in which writers translate ideas into written form, and (c) reviewing in which writers test the plans and translations. The task environment and the writers' long term memory frame the writing process. Others have suggested similar information-processing models of writing. Collins and Gentner (1980) focused on idea production and text production as the broad categories in which subprocesses may be considered, while Scardamalia, Bereiter, & Goelman (1982) distinguish between metacomponents used to identify choices and make decisions, and performance components that allow the writers to carry out their plans. While these models of the writing process differ in the division of tasks, activities, and specific definitions of the process, they share the emphasis on dividing a complex psychological process into smaller components for analysis and description.

Information-processing models of reading share features similar to those of writing. Scholars such as LaBerge and Samuels (1974) have identified component processes that relate to functions of different types of memory. Specifically, they describe the roles of visual, phonological, semantic, and episodic memory in reading. At the heart of their model is attention, the process that allocates the reader's efforts to a particular subprocess or type of memory needed for the task at hand. Thus, for LaBerge and Samuels, the sequence of

progress through the subprocesses may not be linear (i.e., from pattern recognition to letter recognition to code), since attention may be allocated to memories in different patterns. Yet, the component processes can be identified. In contrast, Gough (1972) suggests an information-processing model that accounts for the reading process in terms of a letter-by-letter sequence that eventually leads to word recognition. He identifies subprocesses such as developing a visual or ironic image, moving toward letter identification, searching one's lexicon, and accessing memory for meaning.

These earlier models have given way to more interactive (Rumelhart, 1977; Stanovich, 1980) and component models (Carr, Brown, Vavrus, & Evans, in press). Rumelhart (1977) has argued that the linear models cannot explain such events as easier recognition of a string of letters such as "alligator" when compared to "rllaagtio" (Samuels & Kamil, 1984), an event that suggests that reading is not always linear, beginning with recognition of letters and patterns of letters. Rumelhart's (1977) interactive model and the interactive-compensatory model of Stanovich (1980) explain how higher order knowledge structures can be used in addition to or to compensate for deficiencies at the lower order print analysis stage.

Component models (Carr et al., in press) have added context use and strategic control processes to aspects such as visual processing, semantic processing, phonological processing, and short term memory. In the component models, these processes are decomposable, but interactive processes in which all parts of the system need to be functioning together to be effective. Like the information-processing models that describe the writing process, those that explain reading consist of a series of identifiable subprocesses that operate in

an identifiable sequence or series of events that help to explain the complexity of the overall process of comprehending text.

Limited capacity processors. To continue the computer metaphor, imagine wordprocessing using a personal computer, occasionally saving, retrieving, or printing relevant files as you work. You may notice that while the machine is printing a file, it may take longer for your typed letters to appear on the screen. Or, if you save a document during printing, the printer may pause. This is because computers, though capable of performing a number of activities simultaneously and quickly, must switch their attention among the different tasks. Information-processing theorists use the computer metaphor to describe the limited capacity of readers and writers who often juggle several subprocesses at once.

Readers must operate at several levels, including word recognition and identification, understanding and using syntactic structures, accessing background knowledge, and operating with fluency as they read (Beck, 1985). Writers must also operate at a variety of levels, including planning and organizing their ideas, making decisions about relevant or redundant information, and monitoring their plans as they draft and revise their papers (Raphael & Englert, 1989). Just as the computer cannot attend to everything at once, so too are humans limited. In fact, as Beck (1985) suggests, if readers have "to give direct attention to too many things . . . their reading system [may be] overloaded" (p. 249). How readers and writers come to juggle subprocesses necessary to successfully read and write is explained in terms of how much attention is actually necessary to perform a given activity, and the effective switching of attention to the process most useful for a particular task at hand.

Automatization of processes. LaBerge & Samuels (1974) have coined the term automaticity to describe the way skilled readers' subprocesses are automatic routines. For example, they pay virtually no attention to the decoding subprocess, leaving more attention for comprehension subprocesses. Initially the demands for attending to more specific processes, such as decoding during reading or handwriting during composition are so demanding that other higher level processes such as metacognitive strategies cannot be employed. However, specific processes eventually are mastered to the point of automaticity and new routines can be learned (Carr et al., in press). While not all subprocesses are developed to automaticity (e.g., comprehension or planning always involve some conscious attention), the more that can become automatic, the better the reader or writer may attend to the more cognitively demanding activities at hand.

These three assumptions form the basis of cognitive information-processing models, and can be seen in several reading models and writing models. To date, however, there has been little attempt within this perspective to detail the specific links between reading and writing, though two areas of research have received broad-based attention. As in the individual models, the research into reading/writing connections within this perspective generally (a) describes the processes themselves, and (b) studies how readers and writers structure their knowledge related to the processes.

Research Within the Information-Processing Perspective

Information processing has contributed to our understanding of the reading/writing processes and their underlying knowledge structures. In this section, we discuss a few studies selected as representative of the type of research within this perspective. A major concern of the information-processing theorists is describing the processes of reading and writing. To do so, their

research focuses on an analysis of the components of writing and reading and relationships among the components, to understand the effects of one process on the other.

Much of the research described above illustrates how the information-processing perspective has guided the questions: What is reading? What is writing? However, only a limited amount of research exists that directly examines the relationship between the underlying knowledge important to both reading and writing. In one series of studies, Shanahan (1984) and Shanahan and Lomax (1986) identified components of both reading and writing processes and examined how knowledge structures underlying successful literacy change developmentally.

Not surprisingly, Shanahan found reading and writing to be interactive processes, particularly in terms of their components. One component of knowledge shared by young readers and writers is sound/symbol relationships. Younger students' ability to use phonics rules in decoding relates positively to their ability to spell words when writing. Of interest, however, is the change in this relationship as children mature. In older students such knowledge plays a less important role in defining relationships than does knowledge of vocabulary, story structure, and comprehension strategies.

Shanahan's work illustrates how researchers have studied the way in which writing and reading knowledge influence students' literacy learning and development. Stotsky (1983) wrote a review of the literature examining reading/writing connections and found that, generally, better writers tend to be better readers and that better readers tend to produce more syntactically mature writing than poorer readers. Wittrock (1983) came to a similar conclusion, specifically that writing experiences do influence reading comprehension. He

found that students who participated in a writing activity, writing paragraph summaries following reading, increased comprehension of text. Similarly, he described a study in which students who wrote about their own experiences in relation to texts they had read improved their comprehension of those texts.

Researchers also have looked at the effects of reading upon writing. For instance, Eckhoff (1983) found that the writing of children reflected the features of the basal texts they had used, and concluded that what students had read influenced their writing. In a recent study, Spivey and King (1989) examined students' ability to synthesize information located in different texts they had read. They found that accomplished readers produced elaborate plans, and were successful at creating new texts from a variety of sources. Further, their writing reflected the influence of the various texts in their synthesized pieces of writing.

Since information-processing theorists are concerned with how knowledge is structured, a second type of research common to this perspective is the study of the differences between expert and novice readers and writers. The assumption is that the differences that exist between these two groups will reveal those knowledge structures critical to success in literacy. The importance of underlying knowledge structures has been examined in terms of knowledge of text structure, word meaning and conventions of print. The importance of text structure knowledge in writing and reading has been examined recently in terms of its impact on both writing and reading, particularly in reference to expository text. In several studies, results have suggested that both reading and writing abilities benefit from such knowledge (Armbruster, Anderson, & Ostertag, 1987; Raphael & Kirschner, 1985; Taylor & Beach, 1984).

Knowledge of word meanings has been explored by Duin and Graves (1987) who found that vocabulary knowledge leads to reading comprehension and can improve the quality of writing. Knowledge of the conventions of print and their relationship to reading and writing has been examined by Ehri (1989) who suggests that reading can direct the writer's attention to the conventions of print, while writing enhances a reader's grasp of the alphabetic structure. However, in spite of the information detailing how reading and writing may be related, information processing sheds little light on how to encourage their development, how less successful or novice learners become more successful, expert readers and writers, or the kind of environment that fosters literacy development.

Strengths and Limitations of Information-Processing Theories

Information-processing models and research have detailed the two processes and potential ways in which the two processes relate. As a result of this work, we understand the processes themselves in terms of their complexities, their components, and the knowledge base of skilled readers and writers. However, several limitations affect our knowledge based on this view. Three limitations are particularly relevant in considering implications for instruction. First, information-processing models are often based on contrasts between experts and novices (cf. Hayes & Flower, 1980; Scardamalia & Bereiter, 1986). While these contrasts are useful in identifying critical knowledge that young or naive learners need to acquire, they do not address the important factor of how the novice becomes a more expert learner.

Second, Applebee (1986) suggests that the processes involved in writing may vary depending upon the nature of the writing task, goals and purposes. Further, processes may also vary depending upon the instructional context, the

writer's own history, and the writer's knowledge base. Current information-processing models tend to overlook, ignore, or dismiss important features such as the context in which learning literacy skills occur, social practices, and differences among cultures in their purposes for and ways of carrying out literacy tasks. Denying the importance of such factors may lead to the learning of subskills or routines in a decontextualized manner, much as we see in examining the activities in some of the workbook pages that are integral to basal reading series.

A third limitation stems from the way in which information-processing theories portray reading and writing as a series of subprocesses operating in a rather linear fashion, rather than the more recursive way in which the subprocesses tend to occur (Kucer, 1985). These models may suggest a linear approach to instruction, if the notion of automaticity is used to defend the learning of routines/subskills before young or naive readers and writers may engage in meaningful literacy acts. In summary, while research within an information-processing theory may provide valuable information about what constitutes the reading and writing processes, it is limited in its applicability to the teaching of reading and writing. It is important to consider individual children in interaction with the environment in which they develop their abilities.

Piagetian/Naturalist Theories

The naturalist perspective of learning focuses on innate cognitive structures within individuals. These innate structures have been characterized in terms of language ability (e.g., Chomsky, 1965) and in terms of general cognitive structures (e.g., Piaget, 1926). Consistent with an emphasis on innate language abilities and the role of the environment in allowing these

innate abilities to unfold is the whole-language emphasis. Those who have articulated whole-language teaching methods suggest that language learning is both personal and social and is driven by the child's need to make sense of the world (Goodman, 1967/1986; Goodman & Goodman, 1977; Harste, Woodward, & Burke, 1984; Smith, 1982).

Proponents of this perspective suggest that the development of reading and writing is based on the acquisition of oral language. This stems from the assumption that written language has the same basic characteristics of oral language, one of which is that it develops naturally (Goodman, 1986). Thus, language learning moves from whole to part with no hierarchy of subskills; that is, words are learned before letters, stories are read before sentences, meaning is acquired within the context of reading and writing. Learning to read and write involves actively reading and writing, rather than learning to master specific skills or participating in formal instruction related to reading and writing. Literacy learning occurs when "a person invents language all over again in trying to communicate with the world" (Goodman, 1986, p. 18). Learners construct knowledge of written language as part of their ongoing attempts at comprehension and composition.

This theory of language learning derives from a phenomenological philosophy (Husserl, 1962) and is related to various aspects of a Piagetian developmental theory of learning (Flavell, 1977; Miller, 1983; Piaget, 1926). According to phenomenological thought, we are all born into the life-world or Lebenswelt. In contrast to the existence of an objective reality, this life-world is the reality that is organized and experienced by the individual (Eagleton, 1983; Husserl, 1962).

Phenomenological theory suggests the self as subject who interprets the natural world and endows objects and persons with personal meaning. The individual self is the source of meaning, whereas the external world is reflected within and interpreted by the individual's consciousness. Culture is part of the external world that must be interpreted and imbued with subjective meaning; speech and written language are a means for humans to participate in interpreting the culture. It follows within this view that language is a natural part of the world. The child gradually differentiates and integrates the life-world including language through his own activity (Husserl, 1962; Phelps, 1988).

Basic Assumptions of Naturalist Theories

Three premises are critical to this perspective, articulated in Piaget's theory of development: (a) Thinking resembles logico-mathematical structures; (b) the child is inherently active, continually trying to maintain equilibrium between himself and the environment and actively constructing knowledge; and (c) cognitive development depends upon the learner acting upon the world.

Thinking resembles logical, universal structures. Like mollusks who must adapt to their environment to survive, humans must also adapt to the environment. However, unlike the more simple creatures, humans do this through intelligence. Adaptation for humans occurs through two cognitive processes: assimilation and accommodation. Assimilation involves fitting reality into the learner's current knowledge structures. For example, a child may have an established scheme, or concept, of dogs that includes two different kinds. When a third breed is encountered, the child assimilates that information into his or her current knowledge structure. In this way, the learner's schemata grow and develop as new information and new ideas are encountered.

The second process, accommodation, involves adjustments in the knowledge structure to fit the demands of reality. For example, the child may have a scheme for dog that includes all four-legged animals. Having encountered a horse, and learning of specific differences between this creature and others in the dog concept, the child may create a new scheme to accommodate the concept of the horse. The degree to which assimilation and accommodation are successful relates to the learner's stages of development. These stages are organized patterns of behavior that become increasingly abstract and differentiated over time. They are referred to as sensorimotor, preoperational, concrete operational, and formal operational periods. These stages are characterized by Piaget as being universal and invariant structural wholes that emerge from and transform previous stages.

Applying the Piagetian perspective to literacy, it suggests that children learn oral and written language in order to accommodate to and assimilate the print environment that exists. Language use is functional and children are able to make sense of language when it meets functional needs. This perspective implies that children have language strategies that develop over time as children have continuing experience with language. Strategies such as text intent in which students expect text to make sense; negotiability in which children use what they know already to make sense of print; risk taking in which students hypothesize about the meaning of print; and fine tuning in which students use previously learned language in a new situation (Harste, Woodward, & Burke, 1984) assume that children have structures and experience with language that they impose upon the world to make sense of it.

Child actively constructs knowledge. The need for activity is primary within the Piagetian perspective, for it is through hands-on activity that the

child experiences the world, challenges his or her existing beliefs and schemata, and moves through the stages of development. Learning to read involves interacting with the print environment. Learning occurs when children actively construct their own meanings and have the opportunity to "become language users by mapping language onto experience" (Newman,1985, p. 9). The learner gains meaning from imposing his or her own experience upon the text and checking interpretations based on experience with the text. The learner selects and interprets information from the environment. Thus, a child may initially see the word "oreos" on a package of cookies and identify the sequence as "cookies." Only through a number of encounters within the print environment, including attempts to communicate in writing with others, does the child develop the appropriate connections between print and word meaning.

Further, the experiences of the child are continually filtered through the child's current understanding. In reading, this idea implies that when a child encounters a new word in a text, that new word is learned within the context of the rest of the text and is based on the child's existing knowledge of words and meaning. For instance, when a child substitutes a word different from the one in the text, but a word that shares some graphemes with the word in the text and makes sense in context, the child is building on current understanding. Children are able to self-correct when what is read does not fit into the meaning they are trying to construct (Newman, 1985). This self-correction can occur because the child is constantly changing and self-regulatory.

Over time and through self-monitoring, the child develops the ability to construct meaning from text. The changes that occur in a child's reading and writing can be identified as qualitatively different changes that occur as the child matures and develops. The texts that students read or the texts that they

write become more sophisticated with increased language use; these changes reflect changes in cognitive structures.

Development through stages. In Piagetian theory, internal cognitive structures are formed as the child progresses through universal stages of development. Changes in cognitive structures occur as the result of the interaction between structures within the individual and the environment. Physical maturation, experience with physical objects, social experience, and equilibration (a balance between the organism and the environment) promote movement from one stage to another.

Whole language incorporates this view of learning by suggesting that reading and writing are natural processes that occur as the result of maturation and interaction with the language world. Implicit in this idea of language development is the concept of readiness; children will learn to read and write when they are developmentally ready and are engaged in meaningful activities that require them to act upon the world. Since in this view cognitive development depends on the learner acting upon the world, it is essential that the learner have opportunities to interact with the print environment.

Research Within the Naturalist Perspective

Since the naturalist perspective suggests that students learn through interacting with the print environment, studies within this perspective have focused on the natural ways in which children acquire language. Reading and writing are connected in that both are grounded in oral language; that is, research has not focused on how reading and writing per se are connected, but rather how written language develops from students' natural abilities and experiences with oral language.

For example, research in emergent literacy (Clay, 1975; Sulzby, 1986; Teale, 1986) examines the relationship between oral and written language in young children. Studies indicate that children demonstrate that the activities of reading and writing make sense long before formal instruction and that children have an awareness of the conventions of print at a very early age. Naturalist researchers such as Harste, Woodward, & Burke (1984) have studied how young children develop strategies for making sense of text. They suggest that children expect text to make sense, that children use their existing knowledge to make sense of the text, and that children have a risk-taking attitude towards text. Children also use the language they have encountered in previous experiences as a resource for additional experiences with language. Goodman (1967, 1973) has examined students' miscues as a way of understanding how students make sense of text during reading. Miscue analysis suggests that students call into play knowledge they have about how meaning is constructed and how language operates.

Instruction from a whole-language perspective draws from the research and strategies of Graves (1983) and Calkins (1983) in the development of children as writers. Graves concluded that writers discover meaning as they write and that there is a strong link between the emerging text and thought. Graves (1983) and Hansen (1984) found that students' development in writing was related to the drawings they produced, that students participated in rehearsal strategies before writing, and that their talk with peers in school facilitated their learning. Calkins (1983) found that children could become increasingly sophisticated at revising their texts through continual writing and talking about writing.

Studies of the role of the classroom context highlight the importance of establishing a literate environment for promoting literacy development from a naturalist perspective. DeFord (1986) examined the influence of print environment on students' writing. She found that both form and content of writing varied as a function of the classroom context. Revision and rehearsal occurred in literature-based classrooms, but not in traditional or mastery learning classrooms, and students' writing mirrored the syntax of their textbooks.

Because of the importance of the classroom environment in the naturalist perspective, future research in the area of reading and writing connections would likely take place within the classroom contexts and focus on how students make sense of texts read and texts written. Research questions might include: How do oral language activities facilitate the connection between reading and writing? How do individuals learn to connect reading and writing through the functional uses of the processes?

Studies might include the tracing of students' oral language in their learning to read and write. Case studies could include descriptions of natural settings to find out how children use what they read in their writing and conversely, how their own writing influences their interpretations and uses of texts they read. Further development of miscue analysis could examine the relationships between errors or miscues made in reading with children's learning conventional forms of print in their writing. While these research questions represent conjecture about future directions within the naturalist perspective, the questions serve to highlight some of the strengths of the naturalist views as well as noting some of the weaknesses.

Strengths and Limitations of the Naturalist Theories

The major strength of the naturalist perspective is the focus on the child as a changing, developing organism rather than as a static processor. Because it is a developmental model, the theory attempts to account for children's growth and development from their interactions with the environment. Second, viewing the child as an active constructor of knowledge focuses our attention on the need to understand individual children and how they acquire language. Third, because language is functional in this view, children must be involved in meaningful activities to construct knowledge. This point of view has encouraged educators to provide literacy experiences that build on children's knowledge and provide many opportunities for students to participate in reading and writing activities.

In spite of these strengths, the naturalist view has limitations as well. First, the notion of universal, invariant stages across cultures has not held up empirically because it fails to take into account vast cultural differences in ways of thinking and practices within the society (Laboratory for Comparative Human Cognition, 1983; Scribner & Cole, 1981). Because the theory is a biological one, it assumes that literacy development occurs in the same stage-like progression as physical growth. Thus, it suggests that literacy is a universal practice. The lack of social and cultural foci diminishes the role of the members of society and focuses only on the individual child over the larger social organization. The theory does not take into consideration language practices that exist and differ across cultures or historical periods.

Second, the theory assumes that language acquisition occurs through accommodation and assimilation by the learner testing out hypotheses about the meaning of the environment based on previous experience. Yet, the theory lacks

specificity in describing how assimilation and accommodation actually occur. For instance, how does the process of differentiating the horse from the dog actually take place? To simply suggest reading and writing are natural processes begs the question of how learning occurs. Because the theory suggests learning is based on prior knowledge, it fails to account for how a learner generates new knowledge.

The third limitation is that the role of the teacher is underemphasized (Phelps, 1988). If learning occurs naturally through the child acting upon the world, then the teacher's role as instructor becomes secondary to that of the environment itself. While this perspective may recognize that the teacher is critical in enriching or structuring the environment, it is difficult to infer exactly what should be done instructionally. In summary, while this perspective suggests the kind of environment in which students may acquire the knowledge bases identified by information processing theorists, it, too, does not provide the pedagogical information of how the learner actually acquires new knowledge, relying heavily on the belief that such knowledge is acquired naturally.

Florio-Ruane and Lensmire (in press) suggest

> Learning to write involves not only achieving propositional and procedural knowledge of language structure and norms, but also acquiring beliefs, values, and attitudes about self, others, and text. A mature writer can perceive and use writing as a tool for communicating and also as a means of furthering his or her own thinking and learning of new subject matter. (p..4)

How the mature writer develops, and what constitutes the environment in which such development occurs is addressed more thoroughly by social-constructivist theorists.

Social Constructivist Theories

A social constructivist view of learning has its philosophical roots in the work of Wittgenstein (1953) and Mead (1934) and has been further articulated in the work of Harré (1984). These philosophers share with Kuhn (1962) the conceptualization of knowledge as a social artifact that is maintained through a community of peers. Knowledge, then is not based on an objective reality that can be measured and quantified, but rather is consensually formed through social interaction (Bruffee, 1984;1986). The psychological roots of social constructivism are based on the theories of Vygotsky (1978; 1986; Vygotsky cited in Wertsch, 1985) and others who have developed and modified his views (cf., Bruner, 1985; Cole, 1985; Rogoff, 1986). In this view, knowledge is constructed by interactions of individuals within the society; all thought is social in nature. Learning is an internalization of social interaction that occurs first between individuals and then within an individual. Internalization occurs within the "zone of proximal development" through "adult guidance or in collaboration with more capable peers" (Vygotsky, 1978, p. 86).

Basic Assumptions of Social Constructivism

A social constructivist theory of human learning is predicated on three assumptions: (a) knowledge is constructed by the interaction of the individual with the social-cultural environment, (b) higher mental functions including reading and writing are social and cultural in nature, and (c) knowledgeable members of the culture can assist others in learning.

Interactive nature of knowledge. Social constructivism assumes that knowledge is constructed through consensus by communities of knowledgeable peers (Kuhn, 1962). In contrast to information-processing theories, social constructivism suggests there is no objective reality that can be measured or

mirrored. Nor is reality structured by the individual as suggested in the naturalist perspective. Instead, knowledge is created through the interaction of individuals within the social/cultural environment.

The changing definition of literacy provides an example of how knowledge is formed through consensus and can evolve and change over time. In the 17th and 18th centuries, literacy was understood as the ability to decode words aloud to the satisfaction of the examiner, with no requirement for comprehending or applying the information. In the 1920s, students were expected to read silently and answer comprehension questions in order to be considered literate (Resnick & Resnick, 1977). Presently, in states such as Michigan, definitions of literacy require students to make inferences about the material that has been read. These changing definitions of literacy reflect the consensual nature of knowledge that is inherent in a social constructivist view of knowledge.

Individuals use socially constructed sign systems that have been developed through consensus to act upon the environment; these include interaction between the culture and the individual (Langer, 1987; Vygotsky, 1986). In the Vai culture of Libera, for instance, individuals have adopted the practice of writing letters to relatives and friends using certain conventional forms of salutation. However, they select topics of interest to them as the substance of their personal correspondence. Topics and conventions change over time as the individual interacts with the culture (Scribner & Cole, 1981). Within the culture of American classrooms students learn the skills of decoding words, forming letters of the alphabet as well as reading for comprehension and making inferences--all conventions of this society. As they achieve these skills, they are able to influence the context of the classroom through their use of these skills while they interact with others. The interactions of the individual with

the society is bound to the second assumption of social constructivist theory--that all thought is essentially social in nature.

Social nature of higher mental functions. Vygotsky (1986) characterizes higher mental functions such as reading and writing as those that require voluntary self-regulation, conscious realization, and the use of signs for mediation. Such functions are social in nature and depend on communication across generations and between individuals. The acquisition of such functions begins with the interaction of individuals such as a parent and child, siblings, or teacher and students. Vygotsky describes such learning as occurring first on an interpsychological plane, or between people; then on an intrapsychological plane, within the individual. The role of language and dialogue is critical since it is through speech and social interaction that the learners acquire their new abilities.

For example, initially children may scribble in early attempts to write. Just leaving them alone to explore print and "naturally" develop their writing ability may not be effective for all learners. Vygotskian perspectives suggest that through interaction with a more knowledgeable adult or peer students learn about the functions of print and the conventional forms that allow print to meet its communicative functions. Through the modeling and thinking aloud of the more expert person, students learn the role of writing within our culture, relationships between writing and reading, different ways of thinking when planning to read or write, and so forth.

The term, "zone of proximal development" (ZPD) has been used to describe how learners develop higher mental functions. The ZPD is defined as the "distance between a child's actual developmental level as determined through independent problem solving and potential development as determined through

problem solving under adult guidance or in collaboration with more capable peers" (Vygotsky, 1978, p.86). Three interrelated assumptions underlie the ZPD: (a) there is a difference between what the child can accomplish presently and his or her potential for further learning; (b) what can be achieved alone is different from what can be achieved with the help of a knowledgeable adult or peer; and (c) deliberate transfer of control from the more knowledgeable to a less knowledgeable member takes place. How the adult or more knowledgeable person assists the student in taking control of the process is integral to social constructivist theory.

Assisted performance. Assisted instruction has been compared to a scaffold in that it is temporary, adjustable, and provides support (Applebee & Langer, 1983; Wood, Bruner, & Ross, 1976). Scaffolding involves the structuring of tasks through instruction, modeling, questioning, and feedback until the learner can operate independently. Cazden (1983) describes how mothers scaffold instruction for their children in games such as peek-a-boo. Mothers model the game for their children and say the words aloud providing feedback until the child can initiate the process with others. Pearson (1985) describes this process as one that begins with a period of modeling and thinking aloud, moves toward a period of joint responsibility, and ends with the students assuming control of the strategy.

For example, in teaching students a strategy that focuses on heightening awareness of different sources of information for answering questions (Raphael, 1986), the teacher begins by modeling reading a paragraph, asking a question, thinking about what kinds of information are relevant to the question, modeling how to explore the text and her knowledge base as she searches for this information, and finally, how to construct an appropriate answer to the

question. Over time, teachers and students jointly assume responsibility for the activities within the strategy until eventually students can create their own texts or mental representations from reading, generate questions related to their texts, consider sources of information for answering their questions, and evaluate the most appropriate information for their response. Similar approaches have been used by Palincsar and her colleagues (Palincsar, 1988; Palincsar & Brown, 1984) in teaching comprehension strategies and Englert and Raphael (in press) in developing expository literacy skills. As these examples demonstrate, dialogue is essential to assisting performance in the social constructivist point of view.

Research Within the Social Constructivist Perspective

The basic assumptions of a social constructivist position argue for the social nature of relationships between the two processes; that is, social constructivism would emphasize that reading and writing are connected through their uses within the culture and through the role dialogue plays in the development and use of literacy. To date, little research within a social constructivist perspective specifically with regard to reading-writing connections exists. Rather, researchers from this perspective have focused on issues related to the role of culture in literacy practices (e.g., Gavelek, in press) and in cognition (cf. Bruner, 1985; Greenfield, 1966; Heath, 1982, Scribner & Cole, 1981).

Scribner and Cole's (1981) study of the Vai of Liberia has provided much insight about the role of cultural practices and contexts in relation to literacy. They found that different forms of literate activity required different cognitive operations and that these abilities are dependent upon the

functions they serve in the society. These findings alert us to the importance of the role of the culture in reading and writing.

Class structure as well as the relationship between literacy practices in schools and the value of literacy within communities are important aspects of the role of culture in cognition. For example, Heath's (1982) studies of the preschool environment of students from three distinct socioeconomic communities provides insight into the advantages mainstream students bring with them as they begin school. These children, prior to school, had been initiated into patterns of school literacy behavior that included responding to patterns of questions for which the asker had prespecified answer information, labeling and grouping items, linking text characters to events in real life, and participating in listening quietly to stories read by others.

In contrast, students from the two working-class communities either had some (e.g., early labeling) experiences, but lacked linkages made from book experiences to real-world literacy events, or did not participate in school-type literacy experiences at all. Students from home environments that did not match the literacy practices of school were not as successful in school as students from middle-class backgrounds whose experiences matched those within the school environment. As Heath (1982) suggests, "knowing more about how these alternatives are learned at early ages in different sociocultural conditions can help the school to provide opportunities for <u>all</u> students to avail themselves of these alternatives early in their school careers" (p. 73).

These findings from research with regard to social practices suggest important questions to explore about the relationship between reading and writing, recommendations for establishing appropriate environments for literacy development, and instructional practices to promote reading-writing connections.

Researchers from a social constructivist perspective interested in examining reading and writing connections would be interested in such questions as: Does the interpsychological become intrapsychological in the same way for reading and writing? Because of the centrality of the role of discourse in the theory, researchers might explore in depth the role of dialogue in promoting reading and writing connections. How does dialogue facilitate students' ability to make connections between reading and writing? Since the teacher is key as the representative member of the culture who is responsible for assisting students, social constructivst researchers would be interested in exploring the role of the teacher in making reading and writing connections.

Strengths and Limitations of Social Constructivist Theories

Social constructivism has several strengths for examining written literacy. First, it avoids the extremes of suggesting that either there is an objective world that we try to recreate in our minds (as in information processing), or that there is no objective world, that reality consists of our interpretations of subjective experiences (as in the naturalist perspective). Rather, a social constructivist perspective makes a compelling case for a conception of knowledge based on consensus (Gavelek, in press).

Second, a social constructivist theory accounts for variations among cultures in language practices and in ways that children learn to read and write in different settings. The theory highlights the role of social context and brings our attention to the need to be sensitive to the values and practices of different cultural groups in schools. Third, because social constructivism is a developmental theory, it avoids expert-novice contrasts and explains how children acquire new learning. The focus on language as a cultural tool is both

explanatory in terms of how new learning is acquired and helpful in formulating pedagogical goals and strategies for teaching.

The limitations of social constructivism stem largely from the difficulty of testing the theory. Because the theory does not lend itself to being reduced to components the way that information processing does, yet it resists being totally holistic in the way that naturalist theories tend to be, testing is difficult. Research questions and methodological issues gain in complexity when trying to conduct research from a social constructivist theory. Neither traditional quantitative studies that seek to specify and find regularities, nor naturalist case studies that focus on individuals can capture the complexity of the interaction between the individual and the social/cultural environment in a satisfactory way.

A second limitation to social constructivism is the relationship between enculturation into a society and transformation of the mind. The social constructivist theory explains well how a child is enculturated into the society, but fails to account for the individual's ability to be inventive. The tension between enculturation and transformation is unresolved and merits further theoretical and empirical work. Like information-processing and naturalist theories, social constructivism suggests implications for instruction in classrooms. In the next section we contrast information processing, naturalist and social constructivist perspectives in terms of their instructional implications in reading and writing.

Instructional Implications

Views of learning influence our structuring of classroom environments, selecting instructional methods, and defining teachers' roles. Information-processing, naturalist, and social constructivist theories reflect different

views of appropriate literacy instruction. In his meta-analysis of writing instruction, Hillocks (1984) identified three modes of instruction (i.e., presentational, natural, and environmental). These three instructional modes relate closely to the three theoretical perspectives described above and have relevance to reading as well as writing. In this section, we use Hillock's categories to frame contrasts along the roles of: (a) instruction and the teacher, (b) students, and (c) the classroom environment.

Instruction and the Teacher

> Hillocks (1984) characterizes the presentational mode as having
>
> (a) relatively clear and specific objectives. . .; (b) lecture and teacher-led discussion dealing with concepts to be learned and applied; (c) the study of models . . . [to] illustrate the concept; (d) specific assignments . . . [that] involve imitating a pattern or following rules that have been previously discussed; and (e) feedback coming primarily from teachers (p. 147).

Such features are consistent with the perspective of an objective reality that is transmitted to the naive learner through the direct instruction from a teacher.

Because reading and writing consist of component processes with related strategies learned to the point of automaticity, instruction from an information-processing perspective would focus on the teaching and learning of strategies related to the subprocesses. For example, prediction skills have been shown to be important in planning one's reading (Hansen & Pearson, 1983) in much the same way that writers predict or brainstorm information as they plan their writing (Englert, Raphael, Anderson, & Fear, 1988).

From an information-processing perspective, it would behoove students to become as skilled in predicting, as close to automaticity, as possible. Instruction might begin with a lecture or teacher-led discussion about what a

prediction is, followed by several simple prediction activities. As students become proficient, gradually more difficult materials would be introduced until students are ready to practice prediction in the context of reading or writing a text. Successful predictions would be judged by the teacher who would provide the practice materials that fit students' level of ability. Texts that students read as well as what they write would be well structured and hierarchical since skills build upon one another.

Unfortunately, such an approach can be interpreted as support for the teaching of isolated skills (e.g., main idea, inferencing) using highly structured materials, workbook pages, and the infamous "ditto sheet," rather than teaching skills in more meaningful contexts. Materials may be artificially created so students can learn to the level of automaticity specific letter sounds, words (e.g., Dolch word lists), or skills (e.g., main idea). Actual links between reading and writing may be restrained until students have "mastered" related strategies within each area. While information-processing theorists do not necessarily promote such an interpretation, the caution is nonetheless worth noting.

In contrast, the whole-language approach deriving from a naturalist perspective emphasizes the wholeness of language. Hillocks (1984) characterizes such an approach as the natural process model of instruction. Specific features include generalized objectives (e.g., increase fluency), use of journals so student writers can explore topics of interest, writing for a real audience such as peers, opportunities for revision, and high levels of peer interactions. Because language learning is natural, teachers should "lead from behind," letting students explore areas of interest to them. The curriculum in the whole-language approach is print that naturally occurs within the environment

(e.g., signs, labels), predictable books, trade books, and the experiences that children have in the world. Since students can learn without deliberate assistance (Smith, 1982), the teacher's role is that of facilitator who establishes a literate environment in which students can explore literacy. As Newman (1985) states, "Our role is to create situations in which children can discover the predictability of print for themselves" (p. 21).

In this approach, teachers do not lecture, but they do provide opportunities for students to learn by exploring language, asking students open-ended questions, and promoting shared and sustained silent reading and writing opportunities. Students have many choices about activities in which to participate, books to read, and topics about which to write. From such a perspective, specific skills such as prediction would be developed through natural interactions with printed text, just as children learn to generate hypotheses in oral language activities.

Instruction from a social constructivist view is more directed than in whole-language classrooms, but less than in information processing classrooms. Hillocks (1984) identifies this perspective as the environmental mode of instruction characterized by: (a) clear and specific objectives (e.g. make predictions or brainstorm to prepare for writing), (b) selection of materials and problems in which to engage students with each other around some specifiable processes important to some aspect of literacy learning, and (c) activities conducive to high levels of peer interactions around specific tasks.

Teachers minimize lectures, instead structuring activities to include initial introductory comments prior to students' independent work. Like the presentational mode, principles are taught, but within contexts meaningful to

the students' learning and within contexts that inherently promote the principles to be learned (e.g., establishing a specific purpose or audience).

Such an approach may teach students about predictions using assisted instruction as in Palincsar's (1984) reciprocal teaching procedure. In this approach, the teacher initially models strategy use (e.g., prediction) as she and students together read an expository selection. Initial discussions focus on how predicting relates to comprehending their texts. Students then begin to take turns at being the teacher, leading the discussion which includes making predictions. The teacher supports the students in their initial attempts, sometimes helping them get started, making suggestions about the content of their predictions, and so forth. This support gradually diminishes as students become more able to assume the responsibilities independently. Two key features characterize instruction in a social constructivist classroom: the conscious use of dialogue and the development of particular ways for students to internalize dialogue. Instructional materials are structured in such a way that teachers model through "think aloud" strategies, but students gradually take control of the processes. The teacher's role is to provide assistance through dialogue so that students gradually are in control.

The Role of the Student

In each of the three perspectives, the role of the student is inversely related to the role of the teacher; that is, the more active the teacher is in directing learning, the more passive the student is in terms of decisions about what to read and write, how to initiate projects, and so forth. Whereas the teacher is very active in the information-processing model by providing information and structuring tasks, the student is relatively passive, following the teacher's lead in learning specific skills. In contrast, students are very

active in the whole-language perspective and discover the meaning of language when they are ready. It is the students' responsibility to interact with the environment; the teacher provides the opportunities. "Children . . . become writers (and readers) by learning to make these decisions for themselves. . . . Children must feel comfortable exploring written language in whatever way interests them" (Newman, 1985, p. 31).

Within social constructivism, teachers and students are co-constructing knowledge with one another; both teachers and students are active. Teachers have a responsibility to base their instruction on the background that their students bring to the strategy or activity to be learned. However, students are expected to actively participate as they develop the to-be-learned strategies in a meaningful context and work toward specific literacy goals.

The Role of the Classroom Environment

Information-processing theories have little to say about the context in which literacy skills are developed because of their basic assumption of the stability of these processes across contexts. However, in both the naturalist and social constructivist perspectives the role of the classroom environment is critical because of the primacy of social interaction. Differences between the naturalist and social constructivist perspectives are predicted from the discussion of the roles of teachers and students. In a naturalist, or whole-language environment, the important features include having a rich print environment with availability of a range of books, many opportunities for writing on topics selected by students, opportunity to share with peers, and the freedom within which to experiment in a risk-free environment.

In contrast, a social constructivist classroom environment is likely to have many of these features, with the critical difference being an emphasis on

dialogue: between teacher and students, and among peers. In a whole-language classroom, writing and reading are considered social because they involve an audience and students can assist one another. However, in a social constructivist classroom, the dialogue plays a more prominent role. The dialogue itself is not merely facilitative, but actually formative in the development of the students' thinking about literacy.

Many practices currently advocated to create a literate environment and provide social interaction in written literacy are supported by those from both naturalist and social constructivist perspectives. In fact, observations across classrooms suggest that instructional practices may borrow from different theories. It is unlikely that a classroom would totally reflect the principles of a single theory. However, in spite of surface similarities, the underlying reason for their existence may vary across classrooms, because of both the teacher's individual style and the grounding in different psychological perspectives.

An example can be seen in rather widespread use of Grave's and Hansen's (1983) "Author's Chair," a chair in which students sit to share their own writing, the writing of their peers or that of a professional author. From a whole-language view, Author's Chair provides an opportunity for students to develop their oral language abilities and to share their writing. From the social constructivist perspective, Author's Chair provides students with an opportunity to use the language about writing and reading, because it is only through interpersonal language use or dialogue that students can assume control of their own cognitive processes. Another language activity that may have different underlying purposes within the two perspectives is dialogue journals (Atwell, 1984). Teachers' and students' ongoing written communication about

responses to reading provide a window into the students' cognitions for the social constructivists, while serving as an example of purposeful writing for those from the naturalist perspective.

Concluding Comments

It is tempting to assume that the existence of different theoretical perspectives suggests that we must search for the accurate theory, testing one against the other until we have discovered "truth" about reading and writing connections. However, it may be more realistic to recognize that each perspective contributes to our understanding different aspects of the literacy processes and how they relate; that is, each perspective or theory provides the lens through which we examine reading and writing and raises relevant questions about their relationships.

As we have described, the three perspectives suggest different ways in which reading and writing are related. Further, these relationships have differing implications for instruction. For instance, the focus on component parts in information processing implies that reading and writing are connected through matching individual components with one another. In contrast, the naturalist theory suggests that reading and writing are naturally connected through oral language. Social constructivism implies that a teacher as a knowledgeable member of the culture would need to actively make the links between reading and writing through dialogue and directed activities.

The three theories we have explicated can work together to build a picture of the converging processes of reading and writing. The lens of information processing focuses on questions related to components of writing and reading, relationships among the components, effects of one process on the other, expert-novice and good/poor reader differences, and the structure of knowledge. The

lens of the naturalist theories focuses on questions related to the type of environment that facilitates and supports reading and writing, issues in creating child-centered curricula, and underlying and generalizable cognitive structures within children. Finally, social constructivist theories focus our attention on issues of the social origins of reading and writing; issues of acquisition and emergent literacy including connections between oral and written language; issues related to the developmental priorities of reading, writing, and oral language; societal issues such as how language and literacy tools have been used historically and across cultures; and how children are enculturated into moving beyond what is given to use literacy in unique and personal ways.

References

Applebee, A. N. (1986). Problems in process approaches: Toward a reconceptualization of instruction. In A. K. Petrosky & D. Bartholomae (Eds.), Teaching of writing (85th Yearbook of the National Society for the Study of Education, pp. 95-113). Chicago: University of Chicago Press.

Applebee, A., & Langer, J. (1983). Instructional scaffolds: Reading and writing as natural language activities. Language Arts, 60, 168-175.

Armbruster, B. B., Anderson, T. H., & Ostertag, J. (1987). Does text structure/summarization instruction facilitate learning from expository text? Reading Research Quarterly, 22, 331-346.

Atwell, N. (1984). Writing and reading literature from the inside out. Language Arts, 61, 240-253.

Beck, I. L. (1985). Five problems with children's comprehension in the primary grades. In. J. Osborn, P. T. Wilson, & R. C. Anderson (Eds.), Reading education: Foundations for a literate America (pp. 239-253). Lexington, MA: Lexington Books.

Bruffee, K. A. (1984). Collaborative learning and the "Conversation of mankind." College English, 46, 635-652.

Bruffee, K. A. (1986). Social construction, language, and the authority of knowledge: A bibliographic essay. College English, 48, 773-790.

Bruner, J. S. (1985). Vygotsky: A historical and conceptual perspective. In J. V. Wertsch (Ed.), Culture, communication and cognition: Vygotskian perspectives (pp. 21-34). Cambridge, England: Cambridge University Press.

Calkins, L. (1983). Lessons from a child. Portsmouth, NH: Heinemann.

Carr, T. H., Brown, T. L., Vavrus, L. G., & Evans, M. (in press). Cognitive skills maps and cognitive skill profiles: Componential analysis of individual differences in children's reading ability. In T. H. Carr & B. A. Levy, (Eds.), Reading and its development: Component skills approaches. New York: Academic Press.

Cazden, C. B. (1983). Adult assistance to language development: Scaffolds, models, and direct instruction. In R. Parker & F. Davis (Eds.), Developing literacy: Young children's use of language (pp. 3-18). Newark, DE: International Reading Association.

Chomsky, N. A. (1965). Aspects of a theory of syntax. Cambridge, MA: MIT Press.

Clay, M. (1975). What did I write? London: Heinemann.

Cole, M. (1985). The zone of proximal development: Where culture and cognition create each other. In J. V. Wertsch (Ed.), Culture, communication and cognition: Vygotskian perspectives (pp. 146-161). Cambridge, England: Cambridge University Press.

Collins, A., & Gentner, D. (1980). A framework for a cognitive theory of writing. In L. W. Gregg & E. R. Steinberg (Eds.), Cognitive processes in writing (pp. 51-72). Hillsdale, NJ: Erlbaum.

de Beaugrande, R. (1982). Psychology and composition: Past, present, and future. In M. Nystrand (Ed.), What writers know: The language, process, and structure of written discourse (pp. 211-267). New York: Academic Press.

DeFord, D. E. (1986). Classroom contexts for literacy learning. In T. E. Raphael (Ed.), Contexts of school-based literacy (pp. 163-180). New York: Random House.

Duin, A. H., & Graves, M. F. (1987). Intensive vocabulary instruction as a prewriting technique. Reading Research quarterly, 22, 311-330.

Eagleton, T. (1983). Literary theory. Minneapolis: University of Minnesota Press.

Eckhoff, B. (1983). How reading affects children's writing. Language Arts, 60, 607-616.

Ehri, L. C. (1989). Movement into word reading and spelling: How spelling contributes to reading. In J. M. Mason (Ed.), Reading and writing connections (pp. 65-81). Needham Heights, MA: Allyn & Bacon.

Englert, C. S., & Raphael, T. E. (in press). Developing successful writers through cognitive strategy instruction. In J. Brophy (Ed.), Advances in research on teaching: Vol. 1. Teaching for meaningful understanding and self-regulated learning. Greenwich, CT: JAI Press.

Englert, C. S., Raphael, T. E., Anderson, L. M., & Fear, K. L. (1988). Students' metacognitive knowledge about how to write informational texts. Learning Disability Quarterly, 11, 18-46.

Flavell, J. H. (1977). Cognitive development. Englewood Cliffs, NJ: Prentice-Hall.

Florio-Ruane, S., & Lensmire, T. (in press). The role of instruction in learning to write. In J. Brophy (Ed.), Advances in research on teaching: Vol. 1. Teaching for meaningful understanding and self-regulated learning. Greenwich, CT: JAI Press.

Flower, L., & Hayes, J. (1981). Plans that guide the composing process. In C. Frederiksen & J. Dominic (Eds.), Writing: The nature, development, and teaching of written communication (pp. 39-58). Hillsdale, NJ: Erlbaum.

Gavelek, J. R. (in press). Toward a social constructivist conception of the assessment of reading (dis)ability. International Journal of Research in Education.

Goodman, K. (1967). Reading: A psycholinguistic guessing game. Journal of the Reading Specialist, 6, 126-135.

Goodman, K. (1973). Miscue analysis: Application to reading instruction. Urbana, IL: National Council of Teachers of English.

Goodman, K. (1986). What's whole in whole language? Portsmouth, NH: Heinemann.

Goodman, K., & Goodman, Y. (1977). Learning about psycholinguistic processes by analyzing oral reading. Harvard Educational Review, 47, 317-333.

Gough, P. B. (1972). One second of reading. In J. F. Kavanagh & I. G. Mattingly (Eds.), Language by ear and by eye (pp. 331-358). Cambridge, MA: MIT Press.

Graves, D. (1983). Writing: Teachers and children at work. Exeter, NH: Heinemann.

Graves, D., & Hansen, J. (1983). The author's chair. Language Arts, 60, 176-183.

Greenfield, P. (1966). On culture and conservation. In J. S. Bruner, R. Olver, P. Greenfield, et al. (Eds.), Studies in cognitive growth (pp. 225-256). New York: Wiley.

Hansen, J. (1984, November). Elementary teachers provide rehearsal time. Paper presented at National College of Teachers of Education, Detroit.

Hansen, J., & Pearson, P. D. (1983). An instructional study: Improving the inferential comprehension of fourth grade good and poor readers. Journal of Educational Psychology, 75, 821-829.

Harre, R. (1984). Social sources of mental content and order. In J. Margolis, P. T. Manicas, R. Harre, & P. F. Secord (Eds.), Psychology: Designing the discipline (pp. 91-127). Oxford, England: Basil Blackwell.

Harste, J. C., Woodward, V. A., & Burke, C. L. (1984). Language stories and literacy lessons. Portsmouth, NH: Heinemann.

Hayes, J. R., & Flower, L. S. (1980). Identifying the organization of writing processes. In L. W. Gregg & E. R. Steinberg (Eds.), Cognitive processes in writing (pp. 3-30). Hillsdale, NJ: Erlbaum.

Heath, S. B. (1982). What no bedtime story means: Narrative skills at home and at school. Language in Society, 11, 49-75.

Hillocks, G. Jr. (1984). What works in teaching composition: A meta-analysis of experimental treatment studies. American Journal of Education, 93, 133-70.

Husserl, E. (1962). Ideas: General introduction to pure phenomenology (W.R.B. Gibson, Trans.) New York: Collier.

Kamil, M. (1984). Current traditions of reading research. In P. D. Pearson (Ed.), Handbook of reading research (pp. 39-62). New York: Longman.

Kintsch, W., & Van Dijk, T. (1978). Toward a model of text comprehension and production. Psychological Review, 85, 363-394.

Kucer, S. (1985). The making of meaning: Reading and writing as parallel processes. Written Communication, 2, 317-336.

Kuhn, T. S. (1962). The structure of scientific revolutions. Chicago: University of Chicago Press.

LaBerge, D., & Samuels, S. J. (1974). Toward a theory of automatic information processing in reading. Cognitive Psychology, 6, 293-323.

Laboratory for Comparative Human Cognition (1983). Culture and cognitive development. In W. Kessen (Ed.), The handbook of child psychology: History, theory, and methods (pp. 295-356). New York: Wiley.

Langer, J. (1987). A sociological perspective on literacy. In J. Langer (Ed.), Language, literacy, and culture: Issues of society and schooling (pp. 1-29). Norwood, NJ: Ablex.

Mead, G. H. (1934). Mind, self, and society from the standpoint of a social behaviorist. Chicago: University of Chicago Press.

Miller, P. H. (1983). Theories of developmental psychology. New York: Freeman.

Newman, J. (1985). Insights from recent reading and writing research and their implications for developing whole language curriculum. In J. Newman (Ed.), Whole language: Theory in use (pp. 7-36). Portsmouth, NH: Heinemann.

Palincsar, A. (1984). The quest for the meaning from expository text: A teacher-guided journey. In G. Duffy, L. Roehler, & J. Mason (Eds.), Comprehension instruction: Perspectives and suggestions (pp. 251-264). New York: Longman.

Palincsar, A., & Brown, A. (1984). Reciprocal teaching of comprehension-fostering and comprehension-monitoring activities. Cognition and Instruction, 1, 117-175.

Pearson, P. D. (1985). Changing the face of reading comprehension instruction. Reading Teacher, 38, 724-738.

Phelps, L. W. (1988). Literacy and the limits of the natural attitude. In L. W. Phelps (Ed.), Composition as a human science (pp. 108-130). New York: Oxford University Press.

Piaget, J. (1926). The language and thought of the child. New York: Harcourt Brace.

Raphael, T. E. (1986). Teaching Question Answer Relationships, revisited. Reading Teacher, 39, 516-522.

Raphael, T. E., & Englert, C. S. (1989). Integrating reading and writing instruction. In P. Winograd, K. K. Wixson, & M. Y. Lipson (Eds.). Improving basal reader instruction (pp. 231-255). New York: Teachers College Press.

Raphael, T. E., & Kirschner, B. M. (1985). The effects of instruction in compare/contrast text structure on sixth-grade students' reading comprehension writing products (Research Series No. 161). East Lansing: Michigan State University, Institute for Research on Teaching.

Resnick, D. P., & Resnick, L. B. (1977). The nature of literacy: An historical exploration. Harvard Educational Review, 47, 370-385.

Rogoff, B. (1986). Adult assistance of children's learning. In T. E. Raphael (Ed.), Contexts of school based literacy (pp. 27-40). New York: Random House.

Rumelhart, D. (1977). Toward an interactive model of reading. In S. Dornic (Ed.), Attention and performance VI. Hillsdale, NJ: Erlbaum.

Samuels, S. J., & Kamil, M. (1984). Models of the reading process. In P. D. Pearson (Ed.), Handbook of reading research (pp. 185-224). New York: Longman.

Scardamalia, M., & Bereiter, C. (1986). Research on written composition. In M. Wittrock (Ed.), Handbook of research on teaching (3rd ed., pp. 778-803). New York: Macmillan.

Scardamalia, M., Bereiter, C., & Goelman, H. (1982). The role of production factors in writing ability. In M. Nystrand (Ed.), What writers know: The language, process, and structure of written discourse (pp. 173-210). New York: Academic Press.

Scribner, S., & Cole, M. (1981). The psychology of literacy. Cambridge, MA: Harvard University Press.

Shanahan, T. (1984). The nature of the reading-writing relation: An exploratory multivariate analysis. Journal of Educational Psychology, 76, 466-477.

Shanahan, T., & Lomax, R. (1986). An analysis and comparison of theoretical models of the reading-writing relationship. Journal of Educational Psychology, 78, 116-123.

Smith, F. (1982). Understanding reading (3rd ed.). New York: Holt, Rinehart & Winston.

Spivey, N. N., & King, J. R. (1989). Readers as writers. Reading Research Quarterly, 24, 9-26.

Squire, J. (1983). Composing and comprehending: Two sides of the same basic process. Language Arts, 60, 581-589.

Stanovich, K. E. (1980). Toward an interactive-compensatory model of individual differences in the development of reading fluency. Reading Research Quarterly, 16, 32-71.

Stotsky, S. (1983). Research on reading/writing relationships: A synthesis and suggested directions. Language Arts, 60, 627-643.

Sulzby, E. (1986). Writing and reading: Signs of oral and written language organization in the young child. In W. H. Teale & E. Sulzby (Eds.), Emergent literacy (pp. 50-89). Norwood, NJ: Ablex.

Taylor, B. M., & Beach, R. W. (1984). The effects of text structure on middle-grade students' comprehension and production of expository text. Reading Research Quarterly, 19, 134-146.

Teale, W. H. (1986). Home background and young children's literacy development. In W. H. Teale & E. Sulzby (Eds.), Emergent literacy (pp. 173-206). Norwood, NJ: Ablex.

Vygotsky, L. (1978). Mind in society. Cambridge, MA: Harvard University Press.

Vygotsky, L. (1986). Thought and language. Cambridge, MA: MIT Press.

Wertsch, J. V. (1985). Vygotsky and the social formation of mind. Cambridge, MA: Harvard University Press.

Wittgenstein, L. (1953). Philosophical investigations (G. E. M. Anscomb, Trans.). Oxford, England: Basil Blackwell.

Wittrock, M. (1983). Writing and the teaching of reading. Language Arts, 60, 600-606.

Wood, B., Bruner, J. S., & Ross, G. (1976). The role of tutoring in problem-solving. Journal of Child Psychology and Psychiatry, 17, 89-100.